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Handbook No. 46841. G.

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D. J. DEWEDRY,

HANDBOOK
OF THE
VICKERS RIFLE CALIBRE GUN
LIGHT MODEL
(Class C.)

VICKERS LIMITED.

1915.

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Vickers Rifle Calibre Gun.

LIGHT MODEL.

(Class C.)

General Description.

The gun may be considered as divided into two portions, the non-recoiling and the recoiling. It is worked automatically by two forces; the explosion of the charge, which forces the recoiling portion backwards, and a strong spring (called the fuze spring) which carries it forward. The non-recoiling portion consists of the water-jacket and breech casing, and is attached to the crosshead of the mounting by joint pins.

NON-RECOILING PORTION.

Water-Jacket.—The water-jacket is of steel, holding about $7\frac{1}{2}$ pints of water to keep the barrel cool when firing; it has three openings, one on the upper right side near the breech for filling, one underneath near the muzzle for drawing off the water, and the third (also near the muzzle) for allowing the steam (but not the water) to escape. The first two are closed with screwed plugs, the last is always open and connected with the steam tube.

Asbestos Packing.—To prevent the escape of water, at the forward end of the water-jacket there is asbestos packing, which is held in position round the barrel by

a packing gland. At the rear end of the barrel is a cannellure also filled with asbestos packing, which prevents the escape of water.

Cork Plug.—In addition a cork plug is provided, which can be inserted in the steam escape hole, to prevent waste of water when the gun is travelling.

Steam Tubes.—The steam tube is fitted in the water-jacket above the barrel, and is secured in its proper position by means of the keeper screw in the end cap of the water-jacket. It consists of two tubes, one fixed, having a hole near to each end, and the other arranged to slide freely outside of it, which is termed the slide valve.

Slide Valve.—If the gun is fired at elevation, this valve slides backwards, and (closing up the hole at rear end of tube) prevents the water entering; at the same time it leaves the front hole uncovered, which being above the water-level allows the steam to enter the fixed tube, and to escape through the steam outlet tube in the end cap of the water-jacket.

Similarly if the gun is fired at depression the valve slides forward, uncovers the rear hole and allows the steam, but not the water, to escape.

Breech Casing.—The breech casing consists of two outside plates, a bottom plate and the handle block, the whole being enclosed by two covers.

The outside plates are riveted to the water-jacket. In both plates are slots in which the crank bearings move, partly closed by filling-in pieces; on the inside of both are cams which control the path of the

extractor. On the outside of the right-hand plate are the following fittings:—

Roller and Dead Stop.—A roller which revolves on a stud on the right filling-in piece and is retained there by a washer and a pin. The dead-stop is attached to the right-hand outside plate, and is secured by a taper pin. On the outside of the left-hand plate are three studs for attaching the fuzee spring box, the rear one being on the left filling-in piece.

Bottom Plate.—The bottom plate which is riveted to the outside plates is fitted with a shutter, and carries a bracket to which is attached the elevating gear by means of the elevating joint pin.

Handle Block.—The outside plates are connected at the rear end by the handle block, being held together by a screwed pin which has a “T”-shaped head to facilitate its removal. This pin is also used for assembling and disassembling the lock.

The handle block is fitted with wooden handles by means of which the gun is traversed.

The following parts are also contained in the handle block:—trigger, trigger pawl, trigger lever, safety catch and safety catch spring.

The trigger is pivoted at the bottom of the handle block; it is provided, at its upper end, with a thumb press, while pivoted at its centre is the trigger pawl. The trigger pawl passes through the handle block and engages with the lower end of the trigger lever, the latter being pivoted at its centre to the front part of the handle block. The trigger lever is always in engagement with the trigger bar. A forward movement of the thumb press on the trigger is transmitted

to the trigger lever by the trigger pawl and to the trigger bar by the trigger lever, and thus to the hand-sear of the lock. By means of the trigger lever the forward motion of the thumb press is reversed when it reaches the trigger bar, the same being compelled to slide to the rear.

The trigger bar is returned to its normal position by the action of the trigger bar spring, which lies in a recess in the rear cover.

Safety Catch.—The upper end of the handle block is provided with an automatic safety catch. It is impossible to push the trigger forward unless this catch is raised.

Covers.—The covers (front and rear) are connected by the same hinge pin to the outside plates.

The front cover holds in position the feed block, and is provided with two catches and a locking pin.

This pin revolves freely in bearings provided in the outside plate, but it is attached in such a way that it need never be removed from its bearings, and so there is no danger of losing it.

Attached to the inside of the rear cover and projecting downwards are the extractor guides, which, in conjunction with the cams on the side plates, control the path of the carrier. This cover also contains two grooves, the trigger bar sliding in one and the top part of the lock frame in the other.

Cover Catch.—At the end of the rear cover is a hinged plate with two hooks, known as the rear cover catch. This catch locks the rear cover to the handle block.

Tangent Sight.—On the top of the rear cover is the tangent sight, which is graduated up to 2,000 yards.

RECOILING PORTION.

The recoiling portion (which is mounted inside the non-recoiling portion) consists of the barrel and two recoil plates which carry the lock and the crank.

Barrel.—The barrel is formed with a square block at the breech end and is provided with two studs (one at each side) called the barrel trunnions. By means of these trunnions the barrel is connected to the recoil plates.

Recoil Plates.—The recoil plates are each provided with a hole to receive the barrel trunnions, and also guides in which the flanges of the lock move. The left recoil plate is extended towards the front, and is formed at its end like a hook; this hook engages with the lower lever of the feed block.

Crank Bearings.—The recoil plates each have a bearing through which the crank axis passes, thus connecting the latter with the barrel; these bearings move in slots in the breech casing.

Extractor Holding-up Springs.—The recoil plates are fitted with extractor holding-up springs near the barrel, the use of which is explained later.

Crank.—The crank is fitted on the right with a handle, the upper surface of which bears on the roller, and is of a special curved form; on the left it is fitted with a fuze to which are attached two links. These links form the connection between the crank and the fuze spring. The remainder of the crank is inside the breech casing.

Connecting Rod.—In the centre of the crank is a connecting rod which is free to revolve on the crank pin.

Fuzee Spring.—On the left of the breech casing is a strong spiral spring called the fuzee spring, the rear end of which is connected (as before described) with the crank, and the fore end is attached to the breech casing by means of the fuzee spring box and adjusting screw.

The action of recoil extends the fuzee spring and winds the links which are attached to it about the fuzee, so that when the crank handle is right forward, the fuzee spring is not only extended about one inch by the recoil of the barrel, but the winding of the links on the fuzee causes a still further extension.

As soon as the recoil is exhausted, the action of the fuzee spring is to pull the recoiling portion into the firing position, and to unwind the links from the fuzee, thereby causing the crank handle to fly back and strike the dead stop, which is so constructed that when the crank handle reaches the stop, it is prevented from rebounding.

Lock.—The lock consists of the following parts :—frame, side levers, extractor, firing pin, safety sear with spring, tumbler, extractor levers, hand sear and lock-spring, also axis pin for side levers, tumbler and hand sear. The axis of the safety sear is a part of the lock frame. The lock is attached to the connecting rod by a bayonet joint and when in firing position closes the breech. In this position it is held by the side levers, the crank (which bears against guides on the recoil plates) and connecting rod. The lock has a reciprocating motion communicated to it by the rotation of the crank, and is kept in position during its backward and forward movements by means of flanges working in guides on the recoil plates and by the grooves underneath the cover.

Extractor.—The extractor is attached to the fore end of the lock by guide ribs upon which it slides, and

is fitted with gib, gib spring and shutter. The projections on the gib, together with the cartridge grooves, form recesses which retain the cartridge in position.

Side and Extractor Levers.—The extractor is moved upwards by means of side levers and extractor levers, and when in its highest position is retained there by means of two extractor holding-up springs, which ensure the hole for the firing pin being opposite the centre of the base of the cartridge when the lock is home.

The upward and downward movements of the extractor are regulated by guide ribs and stops; the upper and lower stops form part of the lock casing; the lower one regulates the drop of the extractor by limiting the travel of the extractor levers.

Ammunition Belt.—The gun is supplied with cartridges from a belt which passes through the feed block from right to left. This belt is formed by two pieces of webbing connected by eyelets and brass strips. Projecting strips show how far the cartridges should be inserted in the belt, and the belt itself is made thick at the edge next the bullet by being folded over a piece of cord, so that the cartridges may be kept parallel through the feed block, and lie even in the ammunition belt boxes.

Feed Block.—The feed block is provided with a slide to which are attached two pawls restrained in their lowest position by means of a spring. The object of the pawls is to push the belt through the feed block from right to left. The slide has a transverse motion imparted to it by means of a lever which has two arms, the top arm having a stud which engages in an opening in the slide, and the lower arm a stud which engages in the recess in the left recoil plate; thus the slide is connected with the recoiling portion.

Bottom Pawls.—There are also in the feed block two bottom pawls retained in position by a spring; these project up under the belt and prevent it slipping backwards during firing.

Cartridge Guides.—The feed block is provided with guides fitted above and below in the cartridge way. If the gun is intended for cartridges having a groove at the head instead of a rim, a spring is provided which ensures that the cartridges come to the exact position where they can be seized by the extractor.

Cartridge and Bullet Stops.—The cartridges are prevented from being pushed too far through to the left by means of the cartridge and bullet stops, which are inside the feed block.

Muzzle Attachment.—The muzzle attachment consists of a disc which is clamped to the muzzle end of the barrel, and a perforated sleeve which is connected to the barrel gland by a kind of bayonet joint, consisting of a series of segmental lugs arranged so that the sleeve can be rapidly removed. Into the front part of the sleeve a disc is fitted which is concave, and the barrel disc is cup-shaped, coming almost close up to the front part of the sleeve when the barrel is fully home. In firing, the gases escaping from the muzzle are deflected by the cup-shaped barrel disc, forcing the barrel to the rear after each discharge.

Action of Mechanism.

Action on Recoil.—Suppose the gun to have just fired, the explosion causes the recoiling portion to move backwards through a distance of about one inch, thereby causing the tail of the crank handle to press against and travel under the roller, thereby imparting a quick upward movement to the handle, thus rotating the crank (thereby drawing back the lock); thus the greatest portion of the energy of recoil is transferred to the crank. The travel of the recoiling portion to the rear also moves the upper pawls in the feed block to the right, so as to engage behind a fresh cartridge in the belt. When the lock moves backward the extractor extracts the empty case from the barrel, and withdraws a fresh cartridge from the belt in the feed block. The extractor is kept in position by means of its horns, which move along the upper surface of the cams inside the breech casing until the cartridge is clear of the belt. When it reaches the rear end of these cams, it falls partly by its weight and partly by the action of the guides, thus bringing the cartridge, drawn from the feed block, in line with the barrel, and ejecting from the gun the empty case drawn from barrel.

Action of Fuzee Spring.—When the force of recoil is expended the action of the fuzee spring comes into play, carrying the recoiling portion forward and revolving the crank by the unwinding of the fuzee links, thereby forcing the lock to the front. As the recoiling portion travels forward, it moves the upper pawls on the feed block slide to the left, and thus brings up automatically a fresh cartridge into position in the feed block.

Forward Movement of Lock.—As the lock moves forward into the firing position, the live cartridge is placed in the barrel chamber and the empty case ejected. The extractor is moved upwards by the side levers acting on the extractor levers, thereby ejecting the empty case, also causing the live cartridge to slide over the gib until opposite the firing pin hole, and engaging a fresh cartridge which has been automatically moved into position in the feed block.

Final Movement of Lock.—The extractor reaches its highest position before the side levers have finished their travel, so that during the latter part of their movement their points press against the inclined surface of the bents on the extractor levers, thus giving an additional forward motion to the lock, and thereby tightening up all the joints in the breech mechanism and supporting it firmly against the breech at the instant of explosion.

Cocking Action.—The turning of the crank handle to the rear not only draws the lock away from the barrel, but also gives an upward motion to the connecting rod and rear end of the side levers, which latter, bearing on the tail end of the tumbler, rotate it on its axis, and the head of the tumbler being engaged in a recess in the firing pin, forces the latter to the rear, compressing the lock spring. When the bent of the tumbler has moved below the bent of the hand sear, the latter is forced to engage with it by the action of the lock spring, and it thus holds the tumbler in cocked position. The continued motion of the tumbler carries back the firing pin until the safety sear (which is below and is acted upon by the safety sear spring) is forced into the bent of the firing pin and retains it. The firing pin is thus prevented from flying forward by two actions, viz., that of the safety sear and that of the hand sear.

Firing Action.—On the crank handle returning to the check lever the lock moves to the front, and the connecting rod and rear end of side levers have a downward motion, so that when the lock is in the forward position, the latter depresses the safety sear, thereby disengaging it from the firing pin, which then moves slightly forward till stopped by the bent of the tumbler engaging the bent of the hand sear. If now the upper end of the trigger lever is pressed forward, the trigger bar is drawn backwards, and at the same time a projection on the latter engages and draws with it the tail end of the hand sear, thereby releasing the tumbler; the lock spring then propels the firing pin on to the cap and explodes the cartridge. If pressure on the double button on the trigger lever is maintained as the lock moves forward, the upper end of the hand sear comes in contact with the projection on the trigger bar, and its bent is thus withdrawn from the tumbler before the extractor has reached the firing position, the firing pin is therefore held by the safety sear only, and when the latter is depressed by the rear end of side levers, it is released, and is thrown forward on to the cap by the action of the lock spring. The release of the safety sear from the firing pin is so timed that it cannot take place until after the lock is in the firing position, and has been tightened up against the breech by the last movement of the crank, which causes the points of the side levers to engage the inclines on the bent of the extractor levers as above described.

General Instructions.

Experience has shown that during ordinary firing the pieces most susceptible to wear are the firing pin and the main-spring.

If during a prolonged firing a part such as the lock becomes worn out or damaged, it should be removed and replaced by the spare lock, an operation which only takes a few seconds. If, however, the lock is subsequently made fit for use by replacing the part worn out by a new part taken from the set of spare parts, it should be put back into use and the spare lock (if still in good condition) should be returned to the spare part box.

To Remove and Replace the Lock.—To remove the lock, open the rear cover, turn the crank handle as far to the back as possible, and see that the extractor drops, then take hold of the upper extractor stop and raise the lock, allowing the crank handle to return slowly back; then if there are any live cartridges in the extractor, remove them (while the latter is down); now seize the lock in front, give it one-sixth of a turn to either side, and lift it out.

When the lock is out of the gun, and it is necessary to release the lock spring, great care should be taken before doing so to see that the extractor is at the highest point. The firing pin hole will then be in line with the firing pin.

To replace the lock, see that the connecting rod is upright, then giving the lock one-sixth of a turn to either side, slip the rear end of the side levers over the end of the connecting rod as far as it will go, turn the lock to the front and lower it into the breech casing while turning the crank handle over to the rear; see that the lock flanges are engaging in their guides in the recoil plates, and let go the crank handle.

To Remove and Replace Feed Block.—To remove the feed block, open the front cover, the feed block can then be lifted out by pulling it vertically upwards.

To replace feed block, open the front cover, and force the feed block down into position, taking care that the feed block slide is well over to the left, so that the stud on the lower arm of the lever engages in the recess on the left recoil plate.

To Remove and Replace Fuzee Spring Box.—To remove the fuzee spring box, press the box forward until the lugs on it are clear of the keeper studs on the breech casing, then disconnect the fuzee links and remove the box with spring.

To replace the fuzee spring box, reverse the foregoing operations.

To Keep the Gun in Working Order.—Before taking a gun into action, the surfaces on which all movable parts work should be thoroughly well oiled, especially the following:—

(a) Bearing parts of barrel and all recoiling portions.

(b) The lock guides on the recoil plates, also the working parts of the lock itself. These include the internal components, which can easily be lubricated through the opening on the upper surface of the lock casing, and in addition the external parts such as the levers and extractor.

(c) Faces of feed block and the edges of the cartridge guides inside the feed block.

(d) Bearings of the crank as far as they can be reached without stripping the gun.

Testing Friction of Recoiling Portion.—In order to see that the recoiling portion works freely, remove the fuze spring box, take out the lock, turn the crank handle upwards, take hold of it with the right hand and the fuze with the left, slide the recoiling portion backwards and forwards to see that it moves easily, and also that the barrel goes right home.

Testing Weight of Fuze Spring as measured on the Crank Handle.—Weigh the fuze spring with the spring balance, proceeding as follows:—First open the rear cover and remove the lock, then place loop of spring balance upon the knob of crank handle and pull vertically upwards, the reading indicated when the crank handle COMMENCES to move will be the weight of the fuze spring as measured on the crank handle.

Renewing Packing at Breech End of Barrel.—Should the gun leak at the breech, remove lock, feed block, fuze spring box, pull out the "T" pin from the handle block, take hold of handles and turn the handle block downwards.

Pull out the right and left filling-in pieces and draw out the recoiling portion horizontally to the rear; now lubricate a fresh piece of the fine string asbestos with oil and wind it in the cannellure of the barrel, pressing it together with a thin piece of wood or the point of a turnscrew or knife, until the cannellure is full, then replace the recoiling portion, the filling-in pieces, the handle block, fuze spring box, feed block and lock.

Renewing Packing at Muzzle End of Barrel.—Should the gun leak at the muzzle, unscrew the packing gland and repack, or if necessary replace the asbestos packing (first lubricating it with oil) by winding the asbestos round the barrel. As it is being wound push it in with a thin piece of wood or the point of a turnscrew or knife. The gland should then be screwed

tightly home, but care should be taken that the asbestos packing does not press too tightly against the barrel and cause it to jam; this should be tested as already described by seeing if the recoiling portion moves freely backwards and forwards when the gun is horizontal and the fuze spring removed. If the packing is found to press so hard on the barrel as to prevent this being done, the gland should be removed and the asbestos shortened slightly.

This asbestos packing is supplied in lengths of about 11 inches.

Points before Firing.—(a) Examine the barrel and see that the bore is clear. This can be easily done by removing the lock and looking through the bore after the handle block has been turned downwards for the purpose.

(b) See that the water-jacket is filled with water.

(c) See that the tools and spare parts are close at hand in case of need.

(d) Examine the ammunition and see that it is of the proper description, that the belts are correctly filled with it, and packed carefully in the ammunition belt boxes, the bullets pointing towards the muzzle.

To Fill an Ammunition Belt by Hand.—Insert the cartridge in the loop from the thin edge and pass it through until the point of the bullet is flush with the point of the long brass strips.

Ranging the Gun.—A few rounds should be fired rapidly, and the results carefully watched through a glass. Groups of 15 to 30 rounds will be found effective.

Points to be Attended to during Firing.—(a) See that a sufficient supply of water is kept in the water-jacket so that the barrel shall never be uncovered.

(b) That the hand is kept clear of the crank handle to avoid risk of injury.

(c) That the belt is on no account to be pulled when the gun is firing.

(d) See that the belts are refilled without delay and the boxes replaced.

(e) The men working the gun should keep under cover.

(f) Should it be necessary to take up a fresh position quickly, remove the feed box and partly used belt bodily from the gun and stow away.

(g) During a temporary cessation of fire it would be advisable to remove a partly used belt and replace it by a full one.

(h) In action, if required to remove the belt in a hurry from the feed block, time would be saved by cutting off the empty portion.

Points to be Attended to after Firing.—(a) That the gun is unloaded.

(b) That the barrel is cleaned out and oiled immediately after firing to prevent erosion.

(c) That the lock spring is released.

(d) That before moving, the gun is securely fixed by clamping the elevating and traversing gears.

(e) That in collecting the empty cases there are no live cartridges amongst them.

(f) That the lock is taken out and the extractor, firing pin, and springs are examined to see that they are not damaged.

(N.B.—*It will not be necessary to strip the lock for this.*)

TO STRIP AND ASSEMBLE THE GUN.

To Strip the Gun.—Take out joint pins (crosshead and elevating) and remove the gun from its mounting.

Turn front cover catch pin, open front cover, and lift out feed block.

Open rear cover and remove lock.

Press fuze spring box forward and take off fuze spring box, disconnect the fuze spring from the fuze and remove fuze from crank.

Unscrew and remove the "T" pin which fixes the handle block, take hold of handles and turn down the handle block.

Pull out filling-in pieces, right and left.

Remove muzzle attachment and barrel disc.

Draw out the barrel and recoil plates from the rear.

Unscrew the nut of the cover axis pin, withdraw this pin and remove the covers.

Unscrew and withdraw the axis pin of the catch of the rear cover, remove this catch with its spring and the trigger bar.

Unscrew and remove the axis pin of the handle block and remove handle block.

Unscrew and withdraw the safety catch axis pin and remove safety catch with its spring and also the trigger lever.

Remove the trigger axis pin and remove the trigger.

Withdraw the spring pin from the roller collar and remove collar; also withdraw the taper pin from the dead stop, and remove the dead stop.

Remove the screw fixing steam tube, then unscrew and remove the steam tube.

To Assemble the Gun.—Reverse the foregoing operations.

To Strip the Tangent Sight.—Remove the fixing screws, graduated plate, milled head and slide spring; drive out the pawl fixing pin; take off the pawl; push out the pinion and remove the slide.

To Assemble the Tangent Sight.—Reverse the foregoing operations.

To Strip the Feed Block.—Take out the securing pin of the feed block levers and remove top and bottom levers.

Remove feed block slide, pull off the top pawls and remove top pawl spring.

Pull out axis pin for bottom pawls and then take out bottom pawls and spring.

To Assemble the Feed Block.—Reverse the foregoing operations.

To Strip the Lock.—Remove the lock from the gun and, with the "T" pin from the handle block, press out the side lever axis pin and spring pin; remove the side levers, extractor levers, and slide off the extractor. Press the safety sear down and fire the lock; then press out the tumbler axis pin and remove the tumbler, press out the hand sear axis pin and remove the hand sear

and the main spring; press the safety sear down and shake out the firing pin, then raise the safety sear, unhook the same and remove it. Push out the gib shutter on the extractor and remove the gib spring and the gib.

To Assemble the Lock.—Insert the gib and its spring in the extractor and slide on the gib shutter. Slide the extractor on to the lock frame, insert the safety sear and the firing pin, place the tumbler and its axis pin, place the hand sear and its axis pin, and put on the extractor levers. Put on the side levers and secure them with their axis pin, then ease the firing pin right forward, insert the main spring and push it into place.

The Care and Preservation of Vickers Machine Guns.—It is very important that the bore and chamber should be oiled immediately after firing to prevent erosion.

Oil to be Used for Lubrication.—When cleaning the gun, turpentine or oil is to be used; on no account may emery cloth or any cutting substance be allowed. It is a good plan before assembling the gun to try the parts in their places separately to see that they work freely.

Examination of Components after Practice.—The following course should be pursued after practice. The locks should be taken out, the extractors, firing pins, and springs should be examined to ascertain that they are all correct. It will not be necessary to strip the lock for this.

Monthly Examination.—Every machine gun should be thoroughly examined every month and left in a properly lubricated and serviceable condition.

The following parts should therefore be removed, properly cleaned, and re-oiled or greased.

Lock, feed block, fuze, spring box and spring, handle block, filling-in pieces, dead stop, muzzle attachment and packing, barrel and recoil plates, trigger bar, trigger bar spring, trigger, trigger lever, safety catch spring, steam tube and its slide valve.

(N.B.—*It will not be necessary to strip any of these parts.*)

**Directions for Recommencing Firing
Promptly after the Occurrence of a
Stoppage.**

The following system is based on the fact that the Vickers Automatic Gun has the advantage of having all its mechanism contained in two principal components, namely, the feed block and the lock.

It is to be assumed that besides the man firing, there are two gunners, one on the right and the other on the left. It is also assumed that the spare feed block and the spare lock are available.

When a stoppage occurs, it is not always necessary for the firer to know the actual cause; it is sufficient that he should know which of the two components is responsible for the stop, so that he can replace it at once by the spare, and immediately resume firing.

In order to divide the work, it must be arranged that the gunner on the right has the duty of changing the feed block. He should keep the spare feed block, with the ammunition belt already introduced, in readiness and should see that the belt is properly inserted and that the cartridge is properly fed up, so as to be presented fairly to the extractor. He should also be careful to see that the feed block lever is in the correct position to allow the feed block to be correctly inserted in the gun.

The gunner on the left should be ready to give to the firer the spare lock, the screwdriver, the clearing plug, the oil can and the cleaning rod. When he

receives the faulty lock from the firer his first duty is to put it in order. He should remove any cartridge that may be in the extractor, examine the firing pin, main spring, safety sear, safety sear spring, the extractor, the gib, the gib spring, the side levers and lifting levers, stripping the lock if it is necessary.

If during the firing a stoppage occurs and the crank handle is not down on the deadstop, the firer should try, in the first place, to press down the crank handle. If he can do this correctly, everything is in order for continuing firing. He should be careful when pressing down the handle to do it by means of a glancing blow rather than by direct pressure, so that his hand may not be injured should the gun be accidentally fired. If, however, he cannot press down the handle, he should try to turn the handle in the other direction, so as to draw back the lock; if he can do this, he should then pull the ammunition belt from right to left, so as to feed up a fresh cartridge, then let go the handle and resume firing. If, however, he cannot turn the handle so as to draw back the lock it is probable that a cartridge case has separated and that the front part is fixed on to the following cartridge. He should then open the feed block cover, and the gunner on the left should then with his screwdriver force the cartridge out of the extractor, while the firer turns the handle to draw back the lock. Once the cartridge is clear, the firer should let go the handle, and if it flies back correctly into position, all is clear for resuming the firing, but should it be seen that there had been in the extractor the base of a broken cartridge case and that the front portion was not fixed on the succeeding cartridge, then the front part must be left in the chamber and will have to be removed by the clearing plug. If the firer finds that he cannot push down the handle so as to send home the lock correctly, and if on opening the feed block cover, he sees there is not a broken cartridge case in the extractor, then he should try first to lift out the feed block.

If he finds that the feed block is jammed and consequently difficult to remove, he should lift it out by force with its belt, complete, and replace it by the spare block complete with another belt, and then at once resume the firing. If he finds, however, that the feed block is quite clear and correct, it is evident that the cause of the stoppage is not there. He should then replace the feed block and press down the carrier, while turning the handle. He should first examine the muzzle attachment with its packing gland, taking care to cool off the sleeve and barrel disc, if possible, by throwing some cold water over them. The water jacket should next be examined to see that it contains sufficient water to well cover the breech end of the barrel.

After this he should pay attention to the following points :—

- (a) That the recoiling parts are well lubricated.
- (b) That the fuze spring is neither too heavy nor too light.
- (c) That the cartridge chamber and bore are clear.
- (d) That both the front and rear covers have been properly closed.
- (e) That the bottom plate is completely opened, so as to allow the empty cartridges to fall out.
- (f) That the gun itself has not been hit by bullets or splinters of shell.

The particulars detailed above are extremely simple for soldiers, and with a little practice the firer will be able to resume firing with but little difficulty, and in a minimum of time should any stoppage accidentally occur.

NOMENCLATURE.

1. Lock frame.
2. Safety sear.
3. ,, ,, spring.
4. ,, ,, axis pin.
5. Firing pin.
6. Tumbler.
7. Hand sear.
8. ,, ,, axis pin.
9. Main spring.
10. Lifting levers (or extractor levers).
11. ,, ,, and tumbler axis pin.
12. Lower stop for extractor.
13. Side levers.
14. ,, ,, axis pin.
15. ,, ,, ,, spring pin.
16. Extractor.
17. Horns of extractor.
18. Upper stop for extractor.
19. Groove for extractor holding-up spring.
20. Gib.
21. ,, spring.
22. ,, ,, shutter.
23. Connecting rod.
24. ,, ,, adjusting nut.
25. ,, ,, ,, washer.
26. Crank.
27. ,, pin.
- 27A. ,, ,, securing pin.
28. ,, axis.
29. ,, handle.
30. ,, ,, knob.
31. ,, ,, securing screw.
32. Fuzee.
33. ,, links.
34. ,, spring.
- 34A. ,, ,, hook.
- 34B. ,, ,, nut.
35. ,, ,, tension screw.
- 35A. ,, ,, ,, ,, vice handle.
36. Recoil plate (R.H.).
37. Extractor holding-up spring (R.H.).

-

- 74. Trigger bar.
- 75. " " spring.
- 76. " " projection.
- 77. Front cover.
- 78. " " catch.
- 78A. " " " snib.
- 78B. " " " " spring.
- 78C. " " " cap.
- 79. " " " locking pin.
- 80. Outside plate (R.H.).
- 81. " " " filling-in piece.
- 82. " " " side cam.
- 83. Roller.
- 84. " collar.
- 84A. " " securing pin.
- 85. Dead stop.
- 85A. " " plunger.
- 85B. " " " spring.
- 86. " " bracket.
- 86A. " " taper pin.
- 88. Outside plate (L.H.).
- 89. " " " filling-in piece.
- 89A. Elevating stop.
- 90. Outside plate (L.H.) side cam.
- 91. Spring box.
- 92. Bottom plate.
- 92A. Shutter.
- 92B. Bottom plate slide catch.
- 92C. " " " " spring.
- 92D. " " " " stop.
- 92E. " " " " " pin.
- 93. Trunnion block.
- 94. Water-jacket.
- 95. End cap.
- 96. " " stuffing box.
- 98. Steam tube.
- 99. " " slide valve.
- 100. " " socket (rear).
- 101. " " plug (rear).
- 102. " " " (front).
- 103. " " " " fixing screw.
- 104. " escape tube.
- 105. Filling plug.
- 106. " " chain.
- 107. Emptying plug.
- 108. " " " chain.
- 109. Cork plug.
- 109A. " " stem.

- 109B. Cork plug stem washer.
- 109C. „ „ „ „ fixing pin.
- 109D. Protecting cap for hose connection.
- 109E. Chain for protecting cap.
- 109F. Loop „ „ „
- 110. Cork plug chain.
- 111. Asbestos packing.
- 124. Hole for crosshead trunnion pin.
- 125. „ „ elevating gear joint pin.
- 126. Slots in outside plates in which crank bearings move.
- 127. Crank bearing.
- 128. Holes in steam tube.
- 129. Muzzle attachment packing gland.
- 130. „ „ sleeve.
- 131. „ „ „ securing pin.
- 131A. „ „ „ „ chain.
- 132. „ „ front disc.
- 133. „ „ „ „ cap.
- 134. Barrel disc.
- 135. „ „ screw.
- 141. Sight rack.
- 142. „ „ pin.
- 143. „ „ piston.
- 144. „ „ „ spring.
- 145. „ graduation strip.
- 146. „ carriage.
- 147. „ „ cap.
- 148. „ „ „ screw.
- 149. „ pawl.
- 150. „ „ spring.
- 151. „ „ „ taper pin.
- 152. „ pinion.
- 153. „ strip securing screw (top).
- 153A. „ „ „ „ (bottom).
- 154. Foresight.
- 155. „ „ bracket.

Fig. I.

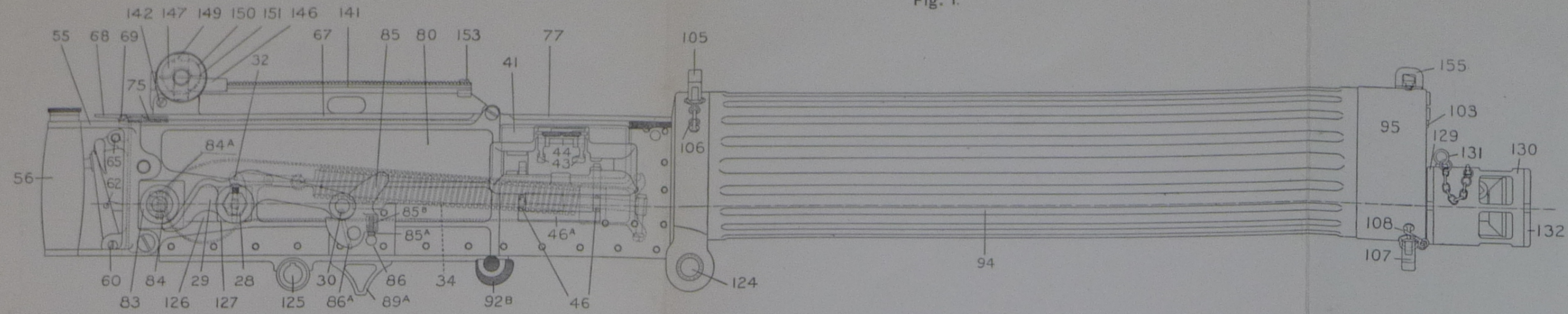


Fig. II.

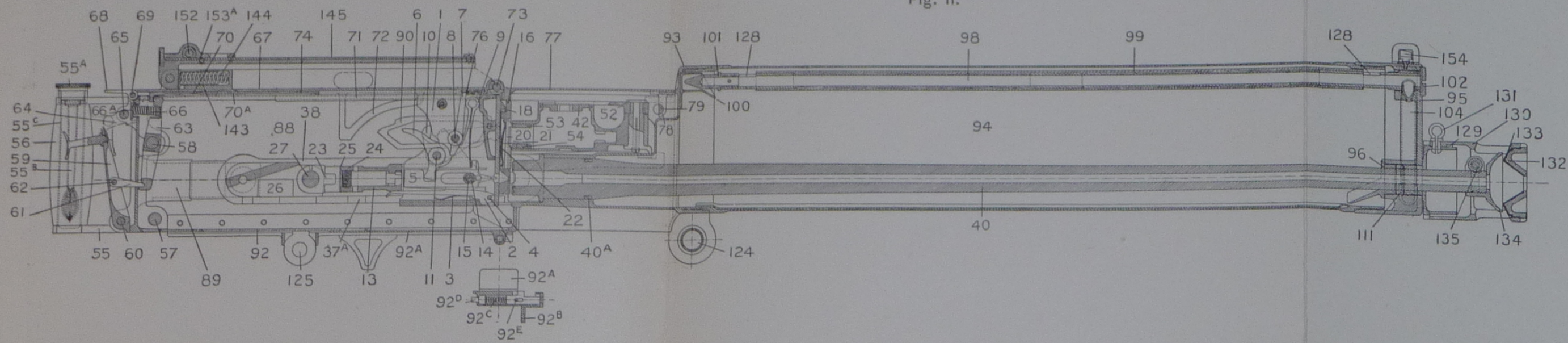


Fig. III.

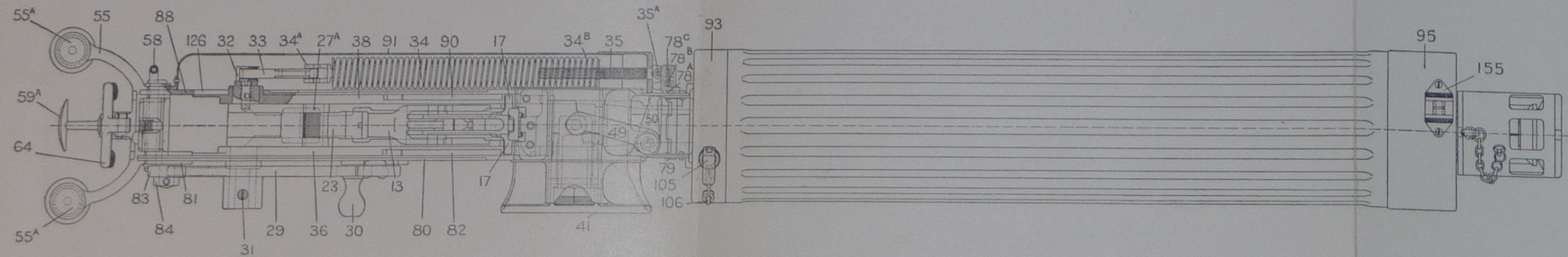


Fig. IV.

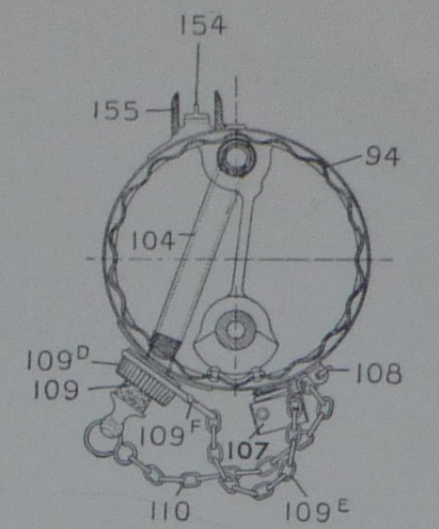


Fig. IVa.

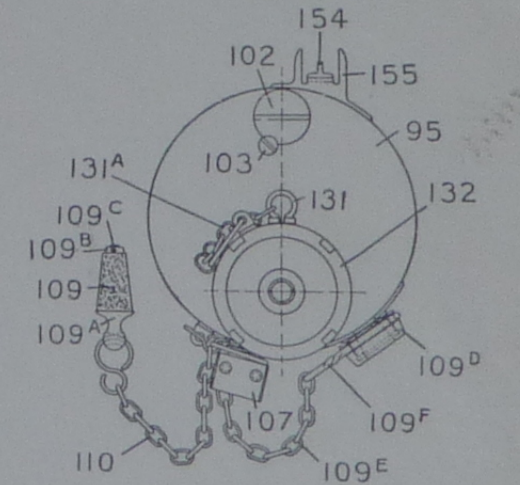
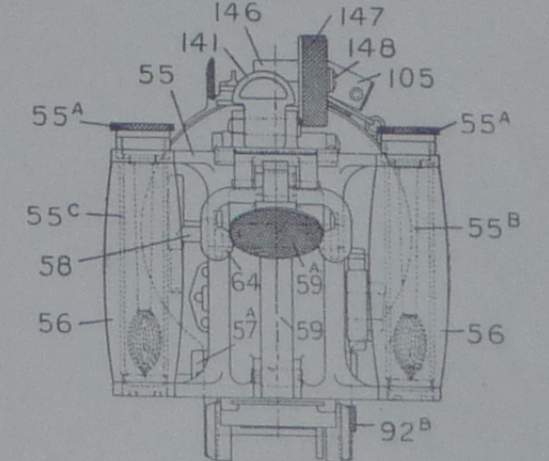


Fig. V.



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Fig. VI.

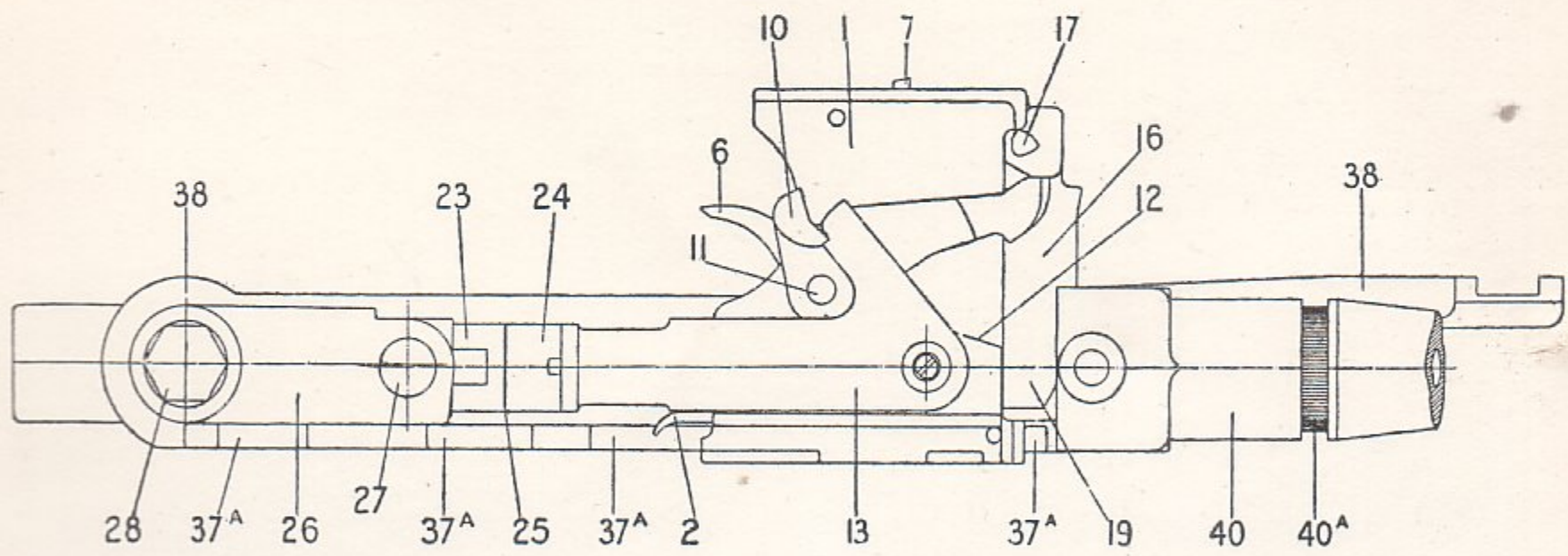
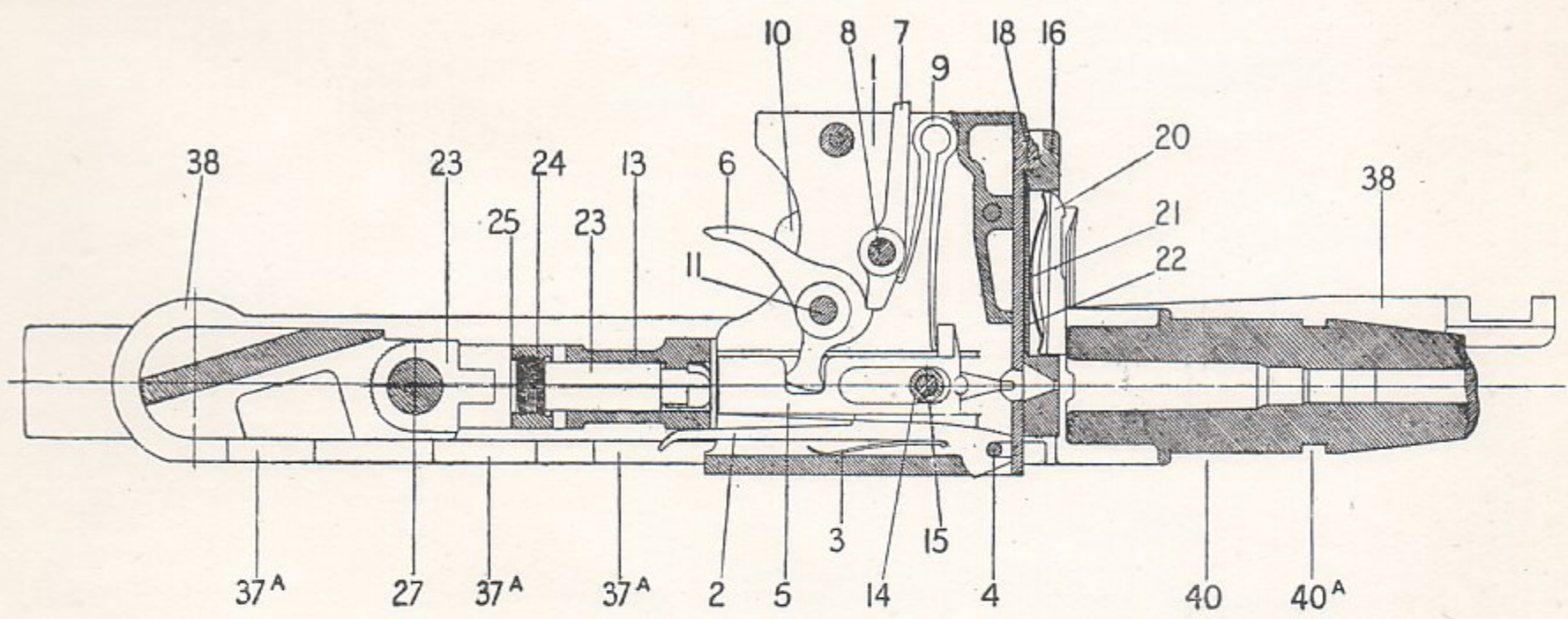


Fig. VII.



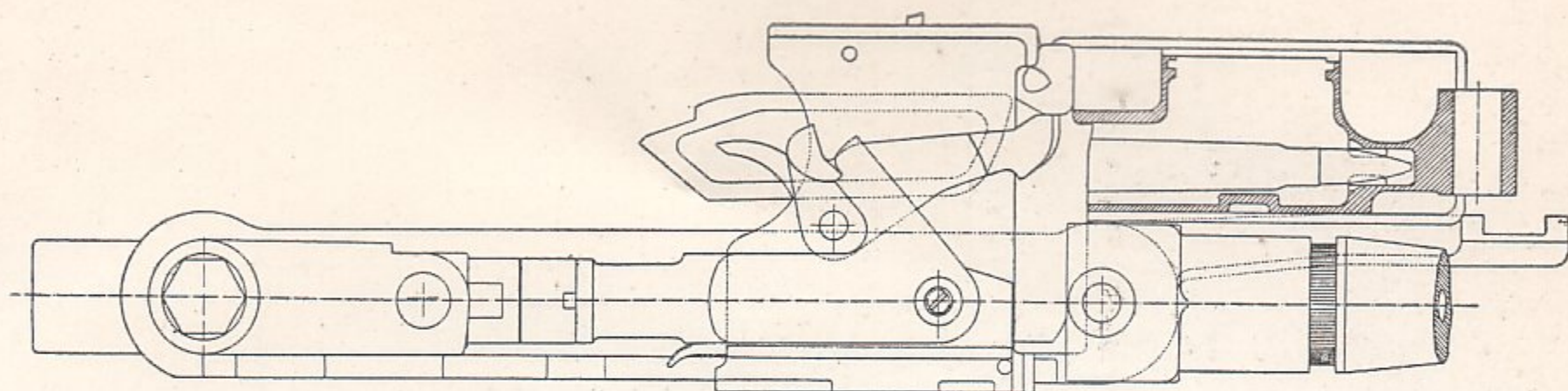


Fig. VIII.—Firing Position.

Lock, barrel and recoil plates fully home. Firing pin cocked on to handsear and extractor engaging with two live cartridges, one in the barrel and one in the feed box.

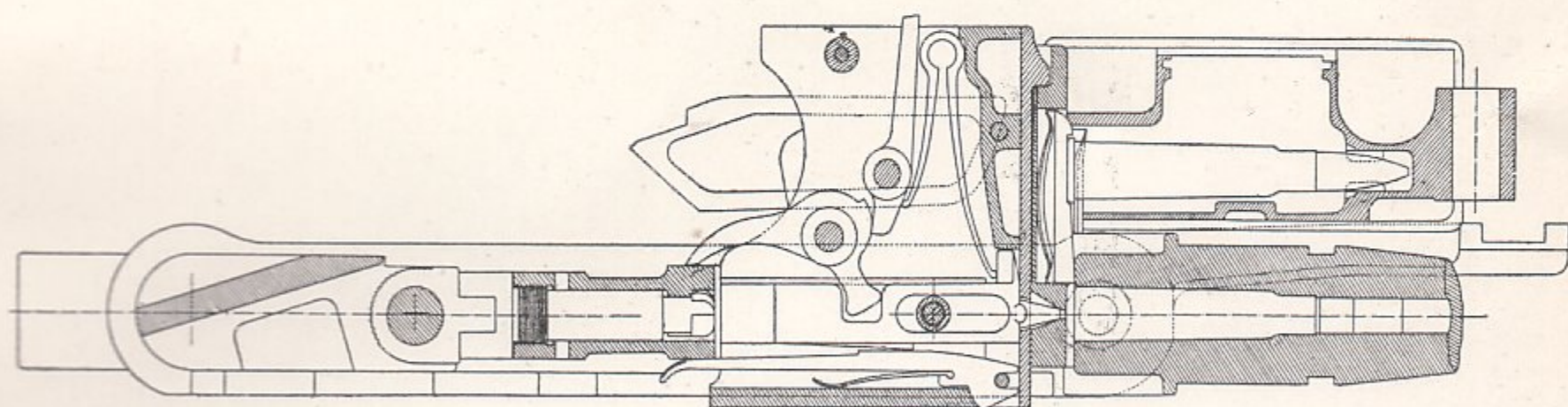


Fig. IX.—Fired Position.

Lock, barrel and recoil plates fully home, firing pin released and the extractor engaging with a live cartridge in the feed box and with the empty case in the barrel.

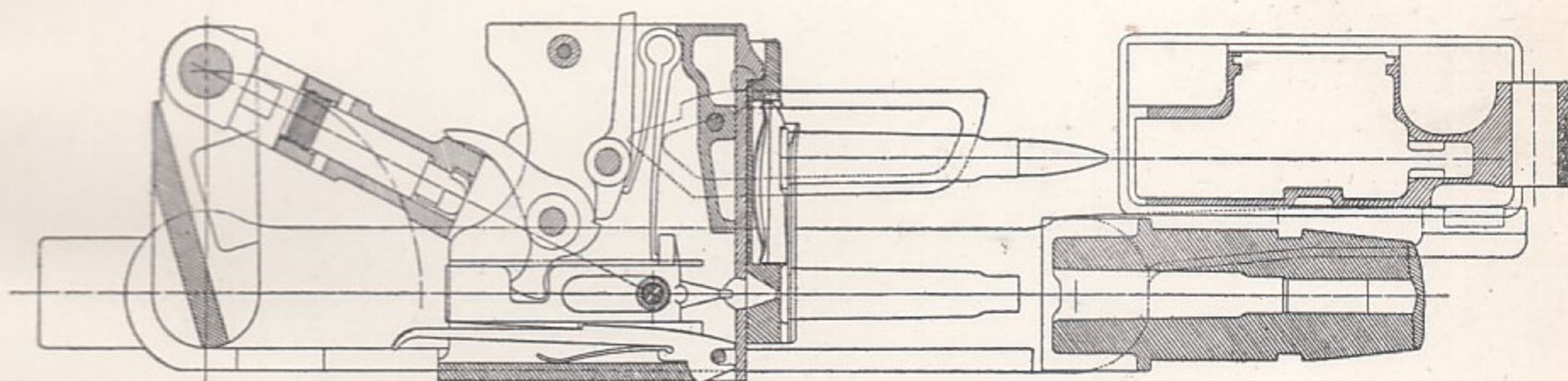


Fig. X.—Recoiling Position.

Lock partly recoiled, cocking the firing pin, and extracting the live cartridge from the feed box, and the empty case from the barrel. Barrel and recoil plates fully recoiled and on the point of returning.

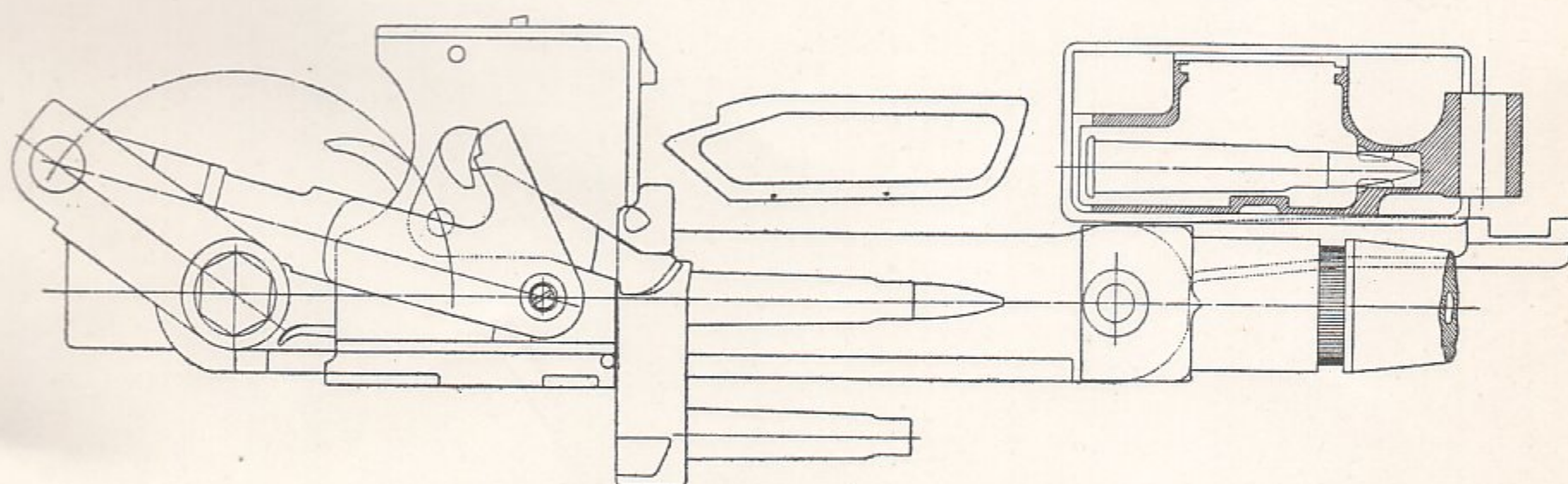


Fig. XI.—Returning Position.

Lock fully recoiled and on the point of returning. Firing pin cocked on to safety sear. Extractor in dropped position bringing live cartridge in line with the chamber of the barrel. Barrel and recoil plates fully returned and new cartridge brought into feed box.

Fig. XII.

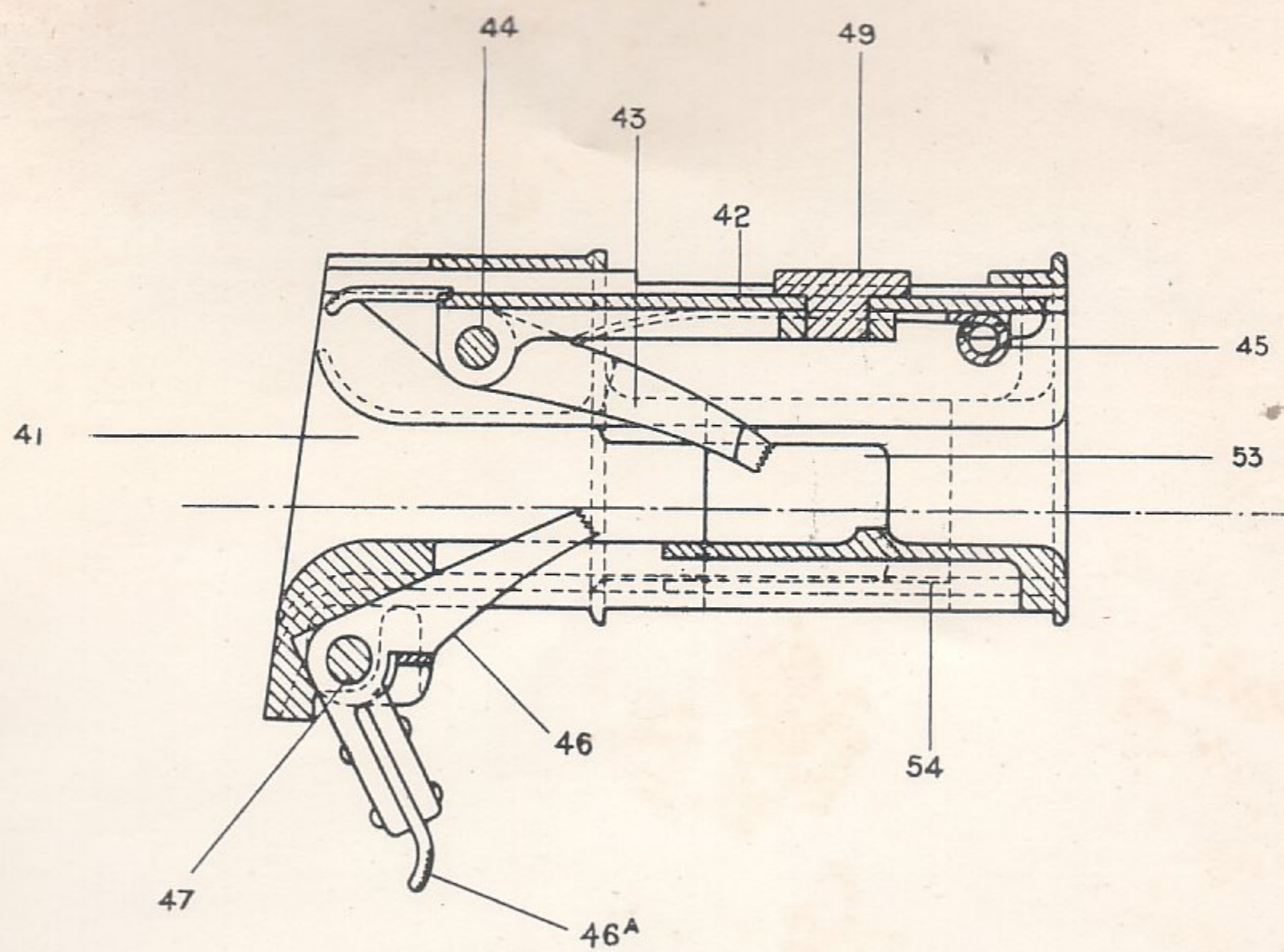
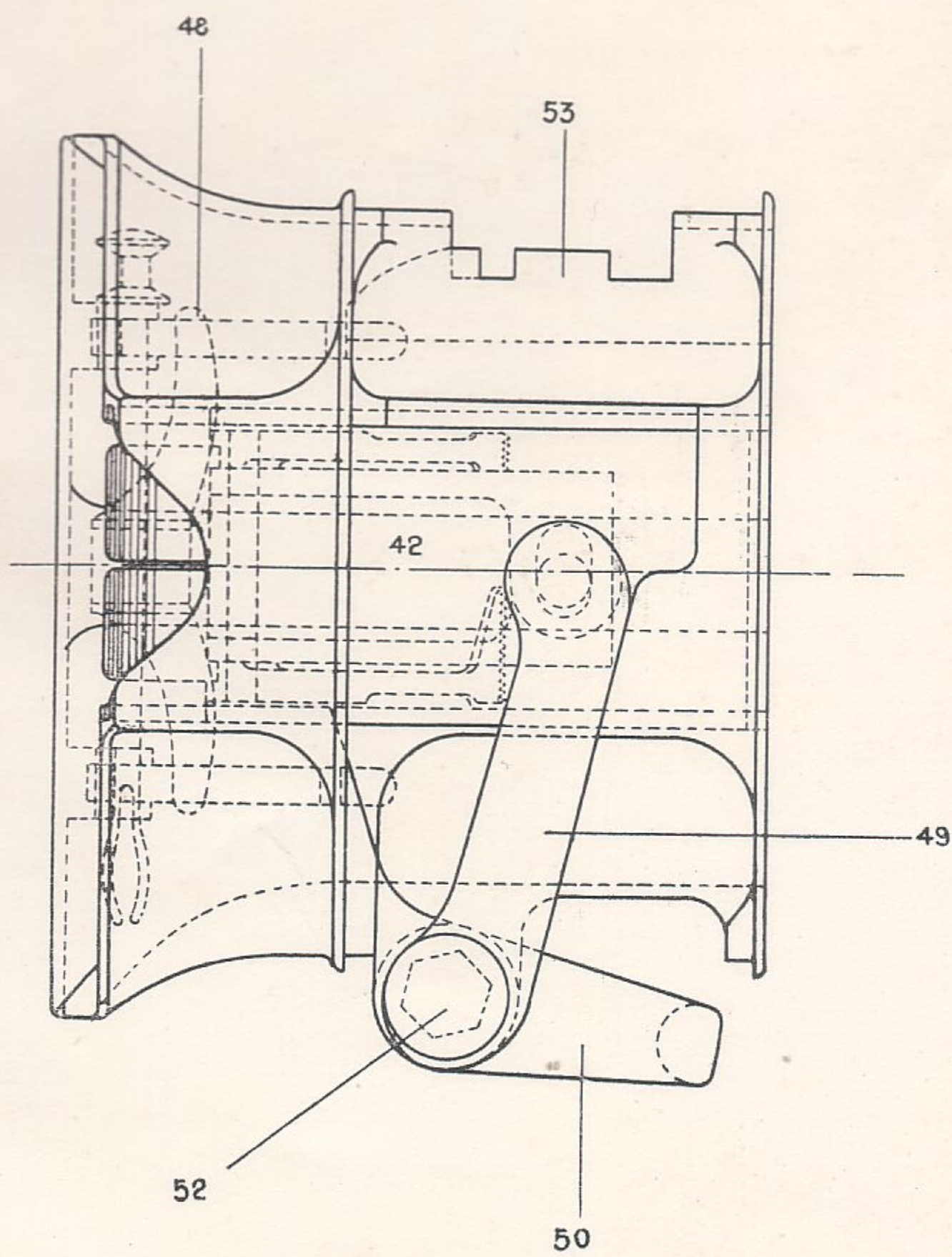


Fig. XIII.



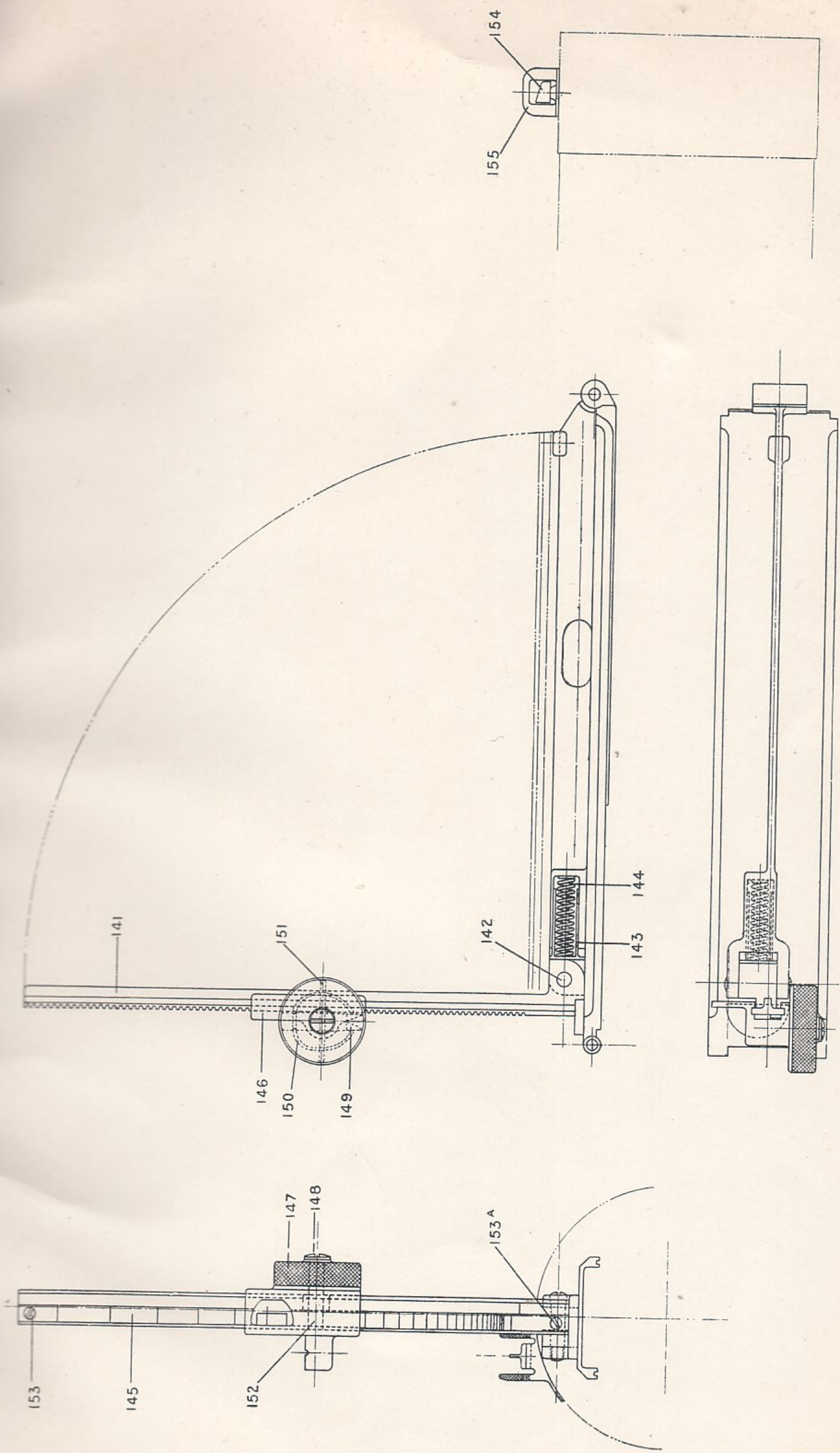


Fig. XIV.



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